TURBO – SCREENER

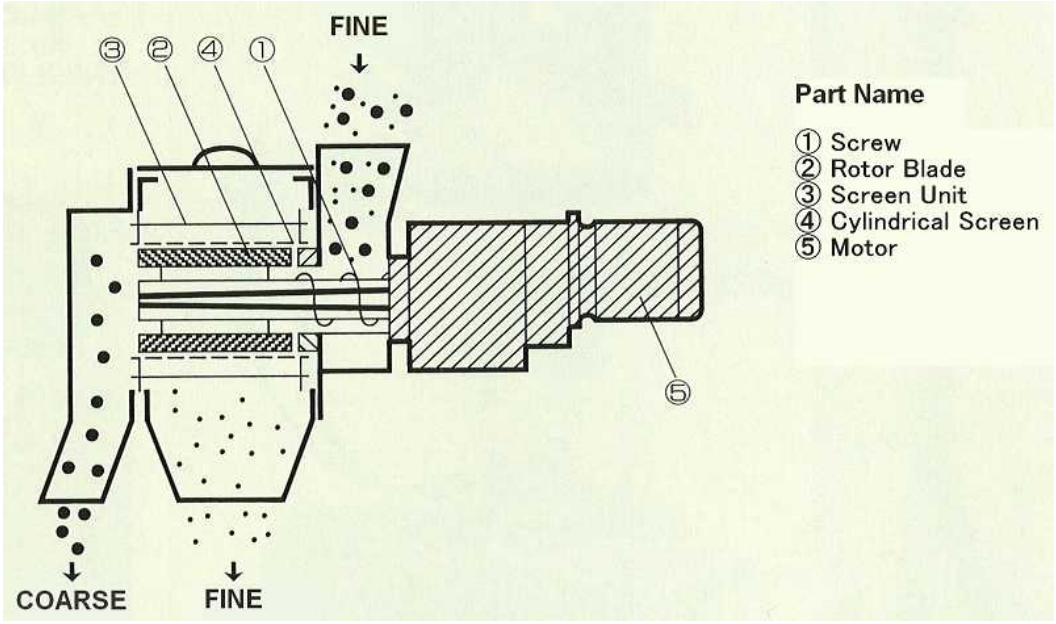
PAT.No.1299637
No.1497227
No.1714232
No.1789918
No.2987706
OTHER PAT PEND.

MODEL : TS 125 x 200

TURBO KOGYO CO.,LTD.

General machine description

Turbo Screener is a continuous classifying machine having a horizontal cylindrical screen with a range of opening size from 10 to 1000 μm in which the raw material is conveyed from inlet to outlet by means of blades rotating at a high speed.



Separation Principle

The raw material fed from machine inlet is conveyed into the entrance of cylindrical screen through the screw and is dispersed evenly over the inner surface of screen by blades rotating at a high speed. As these blades have a torsion angle, the raw material is moved from the entrance of cylindrical screen entrance to its exit spirally turning on the inner surface of screen. During the conveying the accelerated raw material by blades rotating at a high speed hits the inner screen surface, which causes very fine vibration of screen both at front and rear sides of blades. This vibration has a high frequency and a large acceleration force, by which the finer particles than screen opening size pass though it and is collected through the outlet for fine, while coarser particle than screen opening is carried to its exit and over flow from there and collected through the outlet for coarse. Such process is done simultaneously preventing screen from clogging.

CHARACTERISTICS

＊The raw material fed into the machine is dispersed by blades rotating at a high speed, which creates a high frequency vibration. This vibration prevents the screen from clogging.

＊Even an agglomerated raw material can be disintegrated by the rotating blades and is dispersed homogeneously over the screen inner surface, which results in a high separation accuracy.

＊The number of blades, their torsion angle and rotation speed will be decided according to the purpose of the separation. Therefore, even very fragile granules can be separated without being destroyed by adjusting the machine to a short retention time and a soft agitation.

＊The change of screen can be done in a few minutes by having a spare screen frame.（Photo１）

＊The cylindrical screen can be taken out only by opening the front door. The rotor, and the screw part can also be dismantled each separately and very easily without using any tools for a thorough cleaning of each machine part. For the small to medium machine types are conformed with GMP and therefore, very suitable for the application of pharmaceutical, food, fine chemical uses

＊ By applying anti-abrasion materials to the machine and specially designed protection to the cylindrical screen highly abrasive raw materials such as metal powder, corrosive powder can be treated keeping a long machine life time.

＊ Using special geometry blades and urethane made tapping balls sticky raw material due to static electricity like powder paint and toner can be separated. To prevent the accidental escape of ball into the product a specially designed ball escape prevention device is also available as an option.

＊An optional air flow device (Pat.) is also available to gain an outstanding product yield for very difficult raw materials to be separated.

＊ Vibration and noise free operation is possible.

(Photo1)

MODEL: TS 100 X 125, TS 125 x 200
Portable size with 0.2 ～ 0.75 kW Motor.
Easy dismounting and mounting without tools.

(Photo 2)

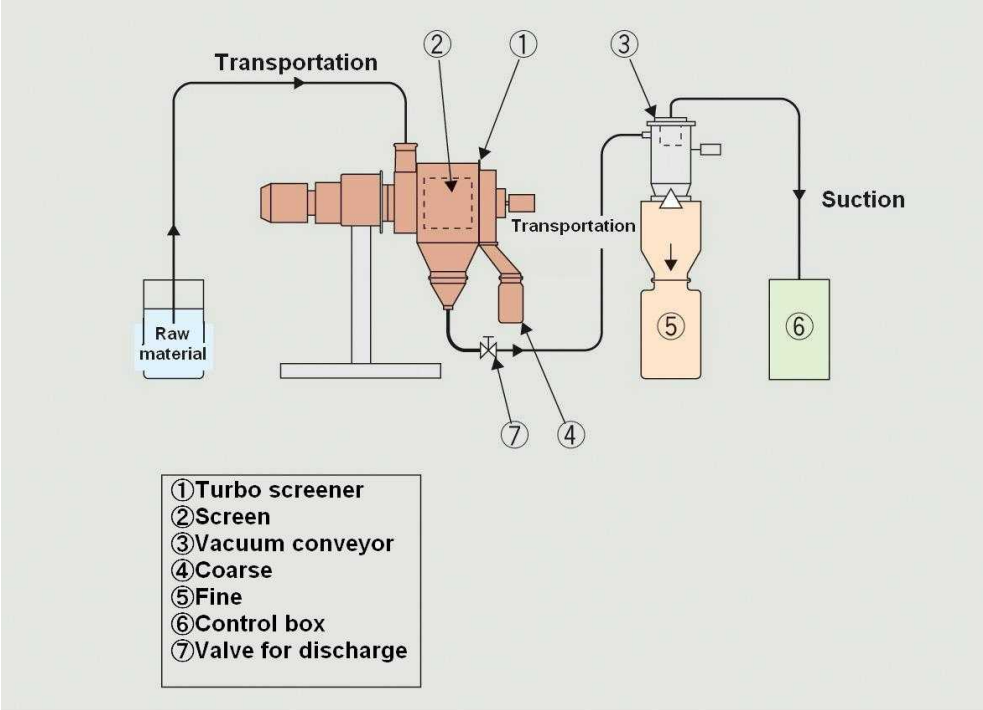
MODEL: TS 250 x 200
Portable medium size with 0.75 kW Motor.
Easy dismounting and mounting without tools.

(Photo 3)

(Photo 4)

MODEL: TS 500 x 400
Maximum size with 3.7 kW Motor.

(Photo 5)



In-line Turbo Screener

＊Possible to be installed in vacuum conveyor line.

＊Perfectly suitable for purpose of removal the dirt like hair from raw material and diluent of medicine by sieving.

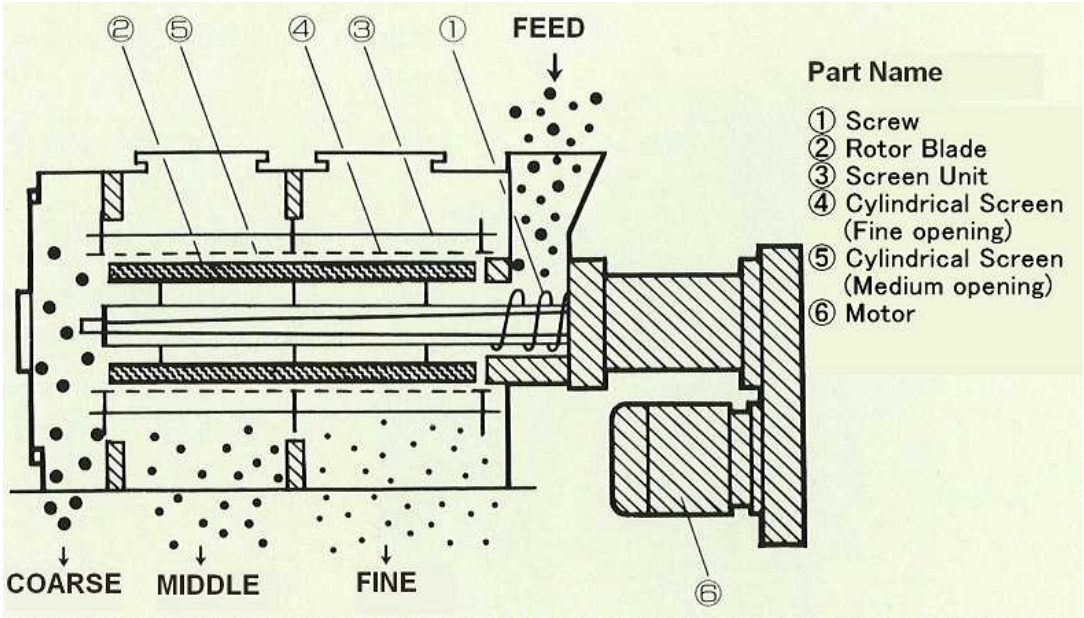
Application Examples

Ferrite	Tungsten Powder	Iron Oxide	Titanium Oxide	Silver Powder	Sulpher Powder
Alumina Powder	Aluminium Hydrated	Silica	Silica Gel	Calcium Carbonate	
Synthetic Zeolite	Antimony Trioxide	Bleaching Powder	Additives for resin	Magnesium Stearate	
Powder paint	Resin Powder	Additives for Rubber	Rubber Powder	Phenol Resin	
Toner	Pharmaceutical Granule	Aroma Chemicals	Raw material for Pharmaceutical	CMC	Lactose
Wheat Flour	Additives for Food	Sweetening	Wheat Bran	Starch	

Special Application

✳ **Fine powder elimination after granulation----**

Smallest type,TS100x125 is designed to be built in our dry granulation machine (Roller Compactor) for the elimination of fine powder part.



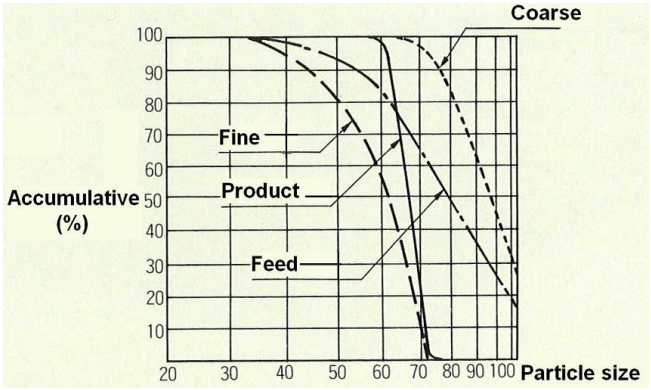
Examples of Actual Application

Product Name	Machine Type	Capacity (Kg/h)	Screen Opening(μm)	Over Screen Efficiency(%)	Under Screen Efficiency(%)
High Purity Bleaching Powder	TS500x400	1600	250	96.5	95.1
Calcined Ferrite	TS500x400	3000	355	Dis-integration & Elimination of Coarse	
Sulfur Powder	TS500x400	1000	710	Dis-integration & Elimination of Coarse	
Aluminium Hydrated	TS500x400	4000	105	—	99.9
Toner (Single Component)	TS350x300	400	73	—	99.0
Calcined Kaoline	TS350x300	800	105	—	99.9
Spherical Silica	TS350x300	200	105	—	98.5
Ferrite(Spray Dried)	TS250x200	100	75	97.0	93.6
Tungsten Powder	TS250x200	200	75	Elimination of Coarse	(99.0)
ABS Resin	TS250x200	400	500	87.8	94.0
Alumina Powder	TS250x200	650	105	—	97.0
Amino Acid	TS250x200	400	840	Dis-integration & Elimination of Coarse	
Dried Egg White	TS250x200	2000	380	—	99.0
Colour Toner	TS250x200	90	38	—	99.0
Spherical Silica	TS250x200	3	12	71.8	82.0
Powder Paint (Epoxy Base)	TS250x200	330	150	Raw Material d_{50}=30 μm	Elimination of Coarse
Magnesium Oxide	TS250x200	80	54	Elimination of Coarse	(97.8)
Powder Paint (Polyester Base)	TS125x200	100	130	90.0	99.0
Titanium Oxide Powder	TS125x200	30	44	99.0	77.0
Toner (Dual Components)	TS125x200	40	45	—	95.0
Antimony Trioxide	TS125x200	130	45	—	98.1
Seaweeds Powder	TS125x200	110	105	—	97.0
Silver Powder	TS125x200	120	75	Elimination of Coarse	(98.0)
Granulated Lactose	TS125x200	125	150	—	96.0

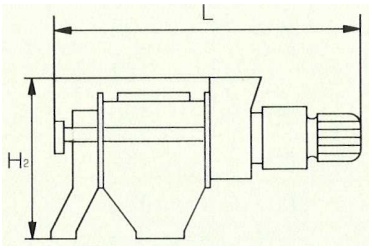
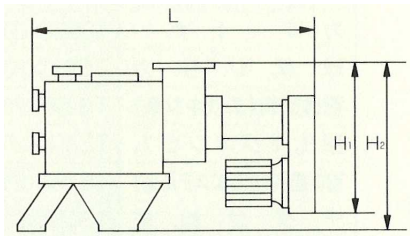
Over Screen Efficiency=Actual over screen product weight/True over screen weight
Under Screen Efficiency=Actual under screen product weight/True under screen weight

Separated grain size Distribution curve

Raw material : Ferrite(Spray dried)
Machine type : TS250x200
Capacity : 100Kg/h
Screen opening : 75μm



MACHINE SPECIFICATIONS

Machine Type		TS100x125	TS125x200	TS250x200	TS350x200	TS350x300	TS500x400
Screen Size(DxL)		Φ 100x125L	Φ 125x200L	Φ 250x215L	Φ 350x215L	Φ 350x300L	Φ 500x400L
Effective Screen Area (c㎡)		392	785	1688	2364	3928	6283
Motor(Kw)		0.2～0.4	0.75	0.75	2.2	2.2	3.7
Rotation(r.p.m.)		350～2000	350～1800	150～1000	125～800	125～800	100～600
Centrifugal Force(G)		6.5～215	5.8～210	3～134	3～120	3～120	2.7～98
Dimensions (mm)	L	723	980	1070	1285	1254	1440
	H_1	—	—	—	—	860	1070
	H_2	280	440	670	830	910	1220
	B (MAX.)	233	295	470	Ca.620	Ca.680	Ca.780
Approx. Machine Weight(Kg)		45	70	200	280	350	450
Dimensional Drawings		 TS100x125 TS125x200			 TS350x300 TS500x400		

MANUFACTURER

Turbo Kogyo Co., Ltd.
2 -10, Uchikawa 1-chome,
Yokosuka-shi 239-0836,
Kanagawa-ken, Japan
TEL 046-836-4900 FAX 046-837-6600
URL : http://turbo-kogyo.co.jp

DISTRIBUTOR

MATSUBO Corporation
33Mori Bldg. 3-8-21, Toranomon,
Minato-ku, Tokyo, 105-0001, JAPAN
TEL 03-5472-1731 FAX 03-5472-1730
URL：http://www.matsubo.co.jp/